

Gases

①

1. a. $D = \frac{MP}{RT}$

$$M = \frac{DRT}{P} = \frac{(3.53 \frac{g}{L})(0.08206 \frac{L \cdot atm}{mol \cdot K})(27^\circ C + 273K)}{(\frac{750 mmHg}{760 mmHg})}$$

$$= \boxed{88.1 \frac{g}{mol}}$$

b. X $1.00 \text{ mol} \times 88.1 \frac{g}{mol} \times \frac{0.648 g Q}{1.00 g X} = 57.1 g Q$

Y $1.00 \text{ mol} \times 104 \frac{g}{mol} \times \frac{0.730 g Q}{1.00 g Y} = 75.9 g Q$

Z $1.00 \text{ mol} \times 64.0 \frac{g}{mol} \times \frac{0.593 g Q}{1.00 g Z} = 38.0 g Q$

c. ~~$0.881 \text{ mol} + 0.648 \text{ mol} = 88.9 \frac{g}{mol}$~~

~~$Q + 1 \text{ mol} = 88.1 \frac{g}{mol}$~~

$19 \times 3 \quad 57.1 g Q$

$19 \times 4 \quad 75.9 g Q$

$19 \times 2 \quad 38.0 g Q$

19 is common multiple Q is most likely F
Mean

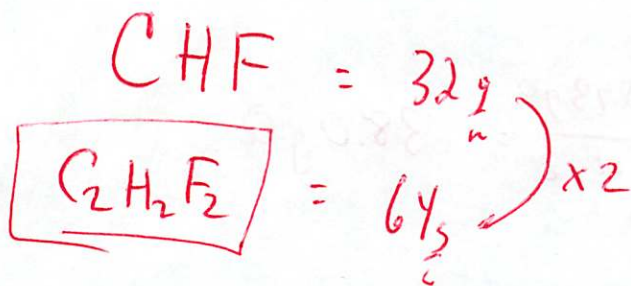
$$d \geq 1.00g$$

$$1.37g CO_2 \times \frac{1 \text{ mol } CO_2}{44.0g CO_2} \times \frac{1 \text{ mol } C}{1 \text{ mol } CO_2} = 0.0311 \text{ mol } C \times \frac{12.0g C}{1 \text{ mol } C} = 0.374g C$$

$$0.281g H_2O \times \frac{1 \text{ mol } H_2O}{18.0g H_2O} \times \frac{2 \text{ mol } H}{1 \text{ mol } H_2O} = 0.0312 \text{ mol } H \times \frac{1.00g H}{1 \text{ mol } H} = 0.0312g$$

$$1.00g - 0.374g C - 0.0312g H = 0.595g F \times \frac{1 \text{ mol } F}{19.0g F} = 0.0313 \text{ mol } F$$

$$\frac{0.0311 \text{ mol } C \quad 0.0312 \text{ mol } H \quad 0.0313 \text{ mol } F}{0.0311 \text{ mol}}$$



2 a CO_2 b/c all balloons contain same # of molecules at the same T and P and since CO_2 molecules have the highest ^{molar} mass they will have the highest mass

b They are all equal $(KE)_{\text{avg}} = \frac{3}{2} RT$ since T is the same the gases are moving @ the same speed.

c CO_2 Even though it's nonpolar it will have the highest London forces so ~~it will be~~ ^{there will be} greater attraction for each particle on each other.

d He has the smallest particles (single atom) so these particles can pass through the latex container walls easier.